

WE CLAIM:

1. A rolling bearing unit with shield plate, comprising:

an outer ring having an outer ring raceway and an anchor groove formed on an inner peripheral surface thereof, the anchor groove being circumferentially provided at an axial end portion separated from the outer ring raceway and having an outside facing side surface;

an inner ring having an inner ring raceway formed on an outer peripheral surface thereof;

a plurality of rolling members rotatably positioned between the outer ring raceway and the inner ring raceway; and

a shield plate formed in a generally circular ring shape and provided with an inside facing, radial outer portion and an outer peripheral edge portion anchored in the anchor groove on the inner peripheral surface of the outer ring at the axial end portion of the outer ring, the shield plate having an elastic seal member formed of a curable polymer substance in a solid state and integrally attached generally circumferentially to the radial outer portion of the shield plate, the elastic member being disposed slightly radially inwardly with respect to the outer peripheral edge portion of the shield plate, such that the seal member is elastically held between the radial outer portion of the shield plate and the outside facing side surface of the anchor groove, and the shield plate formed with at least four cuts along the outer peripheral portion thereof, and

wherein provided that Z stands for the number of rolling members in the rolling bearing and n stands for the number of the cuts, the number equivalent to $n = Z$, or $Z \pm 1$ is excluded.

2. The rolling bearing unit with shield plate of Claim 1, wherein the anchor groove has a generally circumferential end edge portion contacting a widthwise central portion of the seal member.

3. The rolling bearing unit with shield plate of claim 1, wherein the seal member is attached at a location satisfying the following condition: $D_{18} > R_6 > R_{18} > R_{21}$ wherein D_{18} is the outer diameter of the seal member, R_{18} is the inner diameter of the seal member, R_6 is the inner diameter of the outer ring, and R_{21} is the inner diameter of the radially outer portion of the shield plate.

4. The rolling bearing unit with shield plate of claim 1, wherein the outside facing side surface of the anchor groove is inclined by an angle θ with reference to a plane orthogonal to the central axis of the rolling bearing, and the radial outer portion of the shield plate in contact with the anchor groove is tilted by an angle of $(\theta + \alpha)$ within the range of 0 degrees to 5 degrees.
5. The rolling bearing unit with shield plate of claim 1, wherein the seal member is made from an organic elastic material cured in polymerizing reaction by heat or light.
6. The rolling bearing unit with shield plate of claim 2, wherein the seal member is made from an organic elastic material cured in polymerizing reaction by heat or light.
7. The rolling bearing unit with shield plate of claim 5, wherein the organic elastic member has a viscosity in the range of 8000 ± 2000 cPs at $25^\circ C$.
8. The rolling bearing unit with shield plate of claim 6, wherein the organic elastic member has a viscosity in the range of 8000 ± 2000 cPs at $25^\circ C$.
9. The rolling bearing unit with shield plate of claim 5, wherein the organic elastic member has a coating of a substance having substantially non-affinity for oil.
10. The rolling bearing unit with shield plate of claim 6, wherein the organic elastic member has a coating of a substance having substantially non-affinity for oil.
11. The rolling bearing unit with shield plate of claim 9, wherein the substance is fluorine.
12. The rolling bearing unit with shield plate of claim 10, wherein the substance is fluorine.
13. The rolling bearing unit with shield plate of claim 5, wherein the seal member has a tip end that is curved at a free state and a thickness in the range from $0.3T_{11d}$ to $1.5T_{11d}$, where T_{11d} is the thickness of the shield plate.
14. The rolling bearing unit with shield plate of claim 6, wherein the seal member has a tip end that is curved at a free state and a thickness in the range from $0.3T_{11d}$ to $1.5T_{11d}$, where T_{11d} is the thickness of the shield plate.

15. The rolling bearing unit with shield plate of claim 5, wherein the seal member has a tip end that is straight at a free state and a thickness in the range from $0.2T_{11d}$ to $1.2T_{11d}$, where T_{11d} is the thickness of the shield plate.

16. The rolling bearing unit with shield plate of claim 6, wherein the seal member has a tip end that is straight at a free state and a thickness in the range from $0.2T_{11d}$ to $1.2T_{11d}$, where T_{11d} is the thickness of the shield plate.

17. The rolling bearing unit with shield plate of claim 5, wherein the outside facing side surface of the anchor groove facing the seal member has at least one concavity.

18. The rolling bearing unit with shield plate of claim 6, wherein the outside facing side surface of the anchor groove facing the member has at least one concavity.

19. The rolling bearing unit with shield plate of claim 1, wherein the shield plate has an inner peripheral portion, and a labyrinth seal is formed between the inner peripheral portion of the shield plate and the outer peripheral surface of the inner ring.

20. The rolling bearing unit with shield plate of claim 2, wherein the shield plate has an inner peripheral portion, and a labyrinth seal is formed between the inner peripheral portion of the shield plate and the outer peripheral surface of the inner ring.

21. The rolling bearing unit with shield plate of claim 1, wherein the shield plate has an inner peripheral portion, and including a contact seal formed between the inner peripheral portion of the shield plate and the outer peripheral surface of the inner ring.

22. The rolling bearing unit with shield plate of claim 2, wherein the shield plate has an inner peripheral portion, and including a contact seal formed between the inner peripheral portion of the shield plate and the outer peripheral surface of the inner ring .

23. The rolling bearing unit with the shield plate of claim 1, wherein the thickness of the seal member attached to the shield plate is the range from 0.02 mm to 0.5 mm.

24. The rolling bearing unit with the shield plate of claim 2, wherein the thickness of the seal member attached to the shield plate is the range from 0.02 mm to 0.5 mm.

25. The rolling bearing unit with the shield plate of claim 1, wherein the thickness of the seal member attached to the shield plate is the range from 0.04 mm to 0.2 mm.
26. The rolling bearing unit with the shield plate of claim 2, wherein the thickness of the seal member attached to the shield plate is the range from 0.04 mm to 0.2 mm.
27. The rolling bearing unit with the shield plate of claim 1, wherein the shield plate is made of a member selected from a group consisting of a metal and a synthetic resin.